Never stop thinking

TDA7255V - UWLink© Evaluation Kit

Universal Wireless Link

TDA7255V

ASK/FSK Transceiver for the 434 MHz frequency band

User Manual

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Wireless Control

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1 Introduction

The **TDA7255V UWLINK Extension-Board** can either be used as stand-alone module with any other system environment or together with the **UWLink Mainboard** as Interface to your Windows PC.

The **TDA7255V-Explorer** Windows Software may be used to set the configuration registers and to read out the status registers of the **TDA7255V**.



Figure 1 Evaluation-Kit: 2 x TDA7255V UWLink Mainboard & Extension-Board

2 Using the TDA7255V UWLink Extension-Board as stand-alone module

- Close solder bridge JP1 (see Figure 3; default setting of the **TDA7255V UWLink Extension-Board**).
- Leave solder bridge JP2, JP3, JP4 and JP5 open (see Figure 3; default setting of the **TDA7255V UWLink Extension-Board**).
- Select either RX-mode or TX-mode by setting the jumper of the RX/TX-multi-pin connector (X8) accordingly (see Figure 2).
- Select either ASK or FSK by setting the jumper of the ASK/FSK-multi-pin connector (X7) accordingly (see Figure 2).
- Apply a supply voltage of 3V (2.1V to 5V) to connector X3 (for polarity see also Figure 2).
- Apply an antenna or RF-signal generator on the 50 Ω RF-connector (X1; see Figure 2) if the RX-mode is selected (via RX/TX-Jumper). Use an ASK-modulated or FSK-modulated RF-signal according the mode selected by the jumper of the ASK/FSK-multi-pin connector.
- Apply an antenna or Spectrum-Analyzer to be able to measure the spectrum, for instance, on the 50 Ω RF-connector (X1; see Figure 2) if the TX-mode is selected (via RX/TX-Jumper).
  CAUTION: Applying a signal, from a RF-signal generator for instance, in TX-mode could possibly damage the power amplifier output of the **TDA7255V**!
- Connect the Data Input/Output (X2; see Figure 2) to an Oscilloscope, for instance, to be able to measure the data output signal, in case of RX-mode (via RX/TX-Jumper) is selected.
- Apply a data signal, a PRBS9-sequence or just a rectangular signal on the Data Input/Output (X2; see Figure 2) if TX-mode is selected. For data signal Low- and High-level see the Data Sheet.

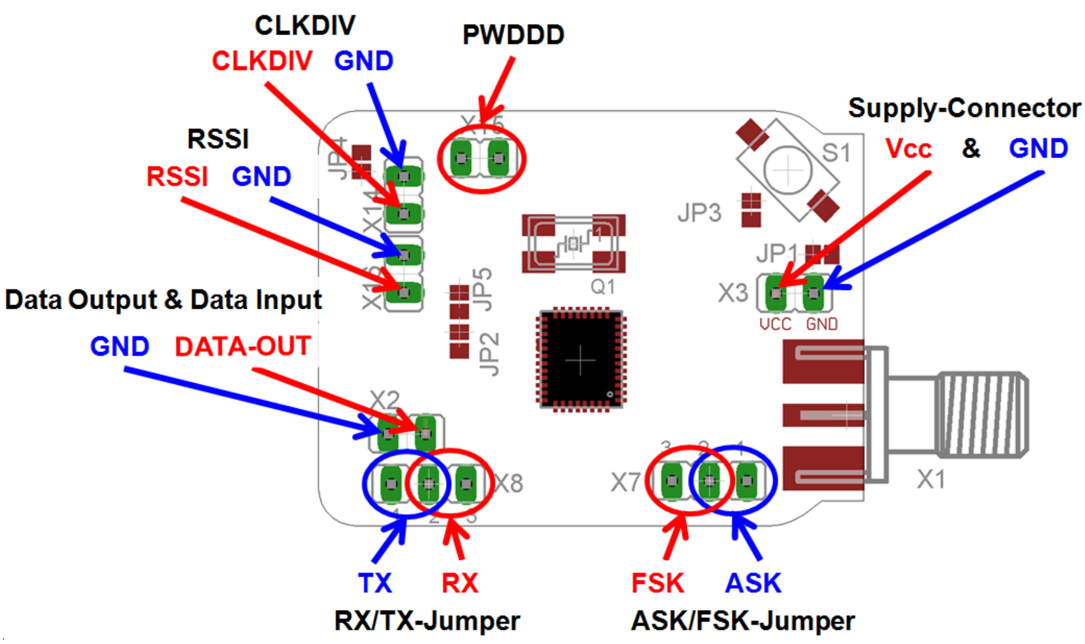


Figure 2 Jumper (axial)

Name and function of the connectors and Jumpers of the TDA7255V UWLink Extension-Board:

- X1: 50 Ω RF-connector (RF-In in receive-mode/RF-Out in transmit-mode)
- X2: Data Input/Output
- X3: Supply-Connector (Vcc/GND) external supply
- X7: ASK/FSK-multi-pin connector
- X8: RX/TX- multi-pin connector
- X14: CLKDIV-Output-Connector (Clock-output)
- X15: PWDDD-Connector
- X16: RSSI-Output
- S1: Reset-switch
- JP1: Reset via Switch S1
- JP2: Data to UWLink
- JP3: Reset via UWLink
- JP4: Supply via UWLink
- JP5: PWDDD via UWLINK

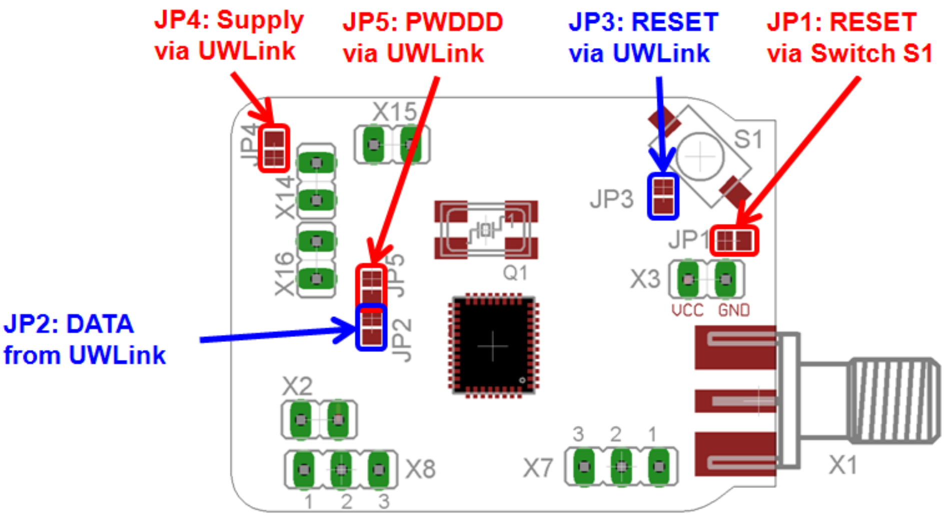


Figure 3 Jumper (SMD)

3 Using the TDA7255V UWLink Extension-Board together with the UWLink Mainboard as interface to a Windows PC

Before using the UWLink Mainboard as interface, the required software, which can be downloaded from the Infineon Web page (see link below), has to be installed.

Please follow this step-by-step approach when you start up your **TDA7255V-UWLink**-Set for the first time:

Important Note: The **TDA7255V Explorer** Windows Software requires the **DAS** (**D**evice **A**ccess **S**erver) and the **SIB-Server** services running in the background. Both are automatically installed while following the steps below.

Step 1 – Installation of the TDA7255V-Explorer

- Go to www**.infineon.com/TDA7255V** and download the latest **TDA7255V-Explorer** Installation Package (e.g. **TDA7255V_Explorer_E1.1.05.zip**)
- Extract the ZIP-archive to a temporary directory on your PC.
- Open the sub-directory **1_DAS** and execute **DAS_setup.exe** and follow the on-screen instructions.
- Execute **TDA7255V_Explorer_E1.1.05.exe** and follow the on-screen instructions.
- Execute the **NextGenLoader** and start the installation of the **SIB-Server** by just double-clicking at the **SIB Server** button (see Figure 4) and follow the on-screen instructions.



Figure 4 SIB-Server button

Step 2 – Usage of the TDA7255V-Explorer

- Start the **TDA7255V Explorer** by double-clicking at the **TDA7255V Explorer** button (see Figure 5).
- Click to **OPEN** in the **Wizard**-tab to start the communication (see Figure 6).
- Now you are ready to configure the **TDA7255V**: Either by changing the settings in the **Wizard**-tab of the **TDA7255V Explorer** (see Figure 6), or by changing the bit values of each register directly in the **Registers**-tab (see Figure 9). CAUTION: If you choose RX/TX and ASK/FSK "Register Controlled" (see Figure 8) it is strongly recommend to remove the jumper of the RX/TX-multi-pin connector and ASK/FSK-multi-pin connector to avoid conflicting hardware and software settings and harming of the **TDA7255V**!

- Furthermore you can read the **SFR Status register** and **SFR ADC register** at the **Explore**-tab. See the **RSSI Voltage and Vcc Measurement-** and **Data valid decision**-fields in the **Explore**-tab (see Figure 10).
- A PRBS9 sequence with variable data rate can be generated by the **TDA7255V-Explorer** and will be applied to the data input when closing the jumper JP2 (see Figure 3). The desired data rate can be adjusted and the transmission started in the **Test transmission**-field in the **Explore**-tab (see also Figure 11).
- The **TDA7255V** can be switched between **Power-Down-Mode** and **Device-Active-Mode** by the **TDA7255V-Explorer** when closing the jumper JP5 (see Figure 3). You can switch to **Power-Down-Mode** or **Device-Active-Mode** by just clicking on the accordant side of the symbolic dip-switch in the **Power Down and Data Detect pin**-field in the **Explore**-tab (see Figure 12).
- The **TDA7255V** can be reset by the “Reset”-button in the **Chip Control**-field at each tab of the **TDA7255V-Explorer** (see Figure 13) when closing jumper JP3 and opening jumper JP1 (see Figure 3).
- The registers settings can be saved as config-file (*_spi.def) by clicking at the “**Save**”-button in the **Register**-tab on the one hand (see Figure 14). Already available config-files can loaded by clicking at the “**File-Open**”-button on the other hand (see Figure 15)



Figure 5 TDA7255V Explorer button

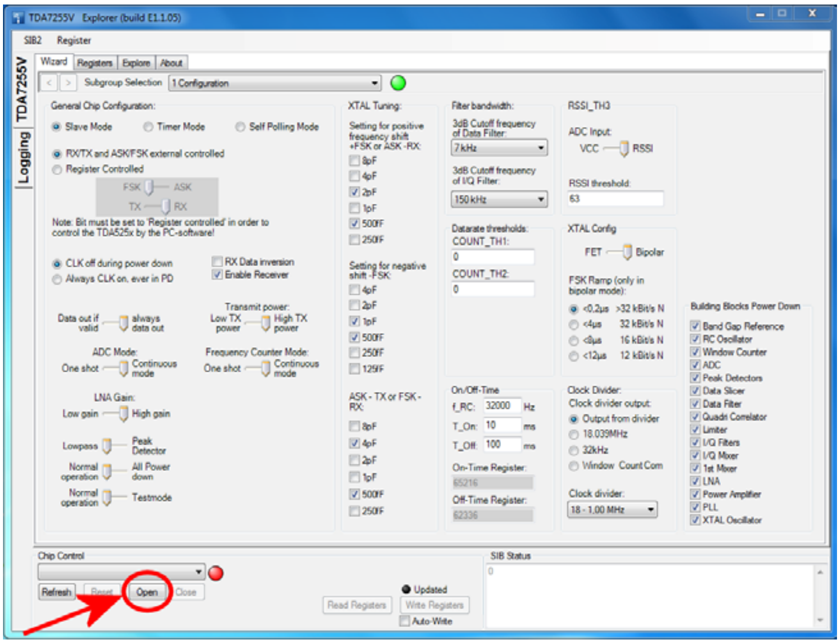


Figure 6 TDA7255V-Explorer, Open button

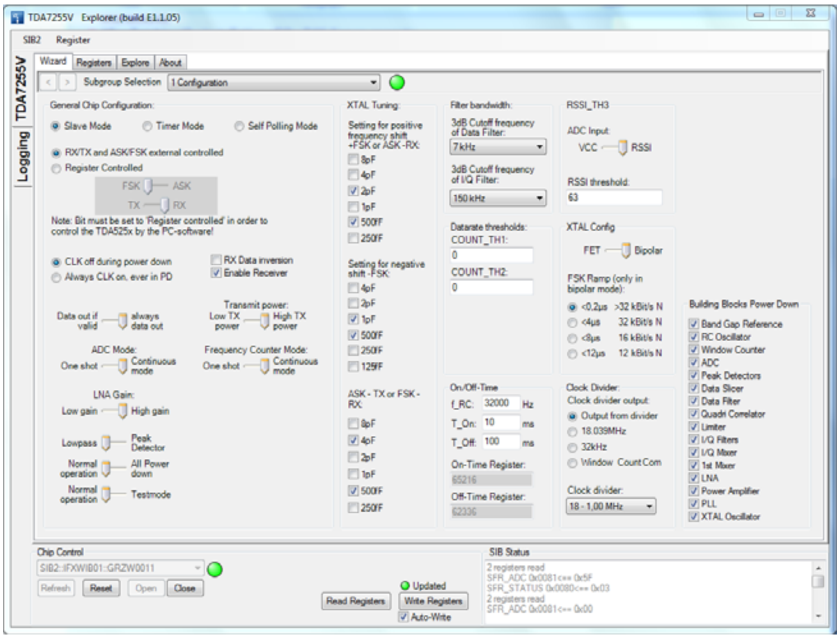


Figure 7 TDA7255V-Explorer, Wizard tab

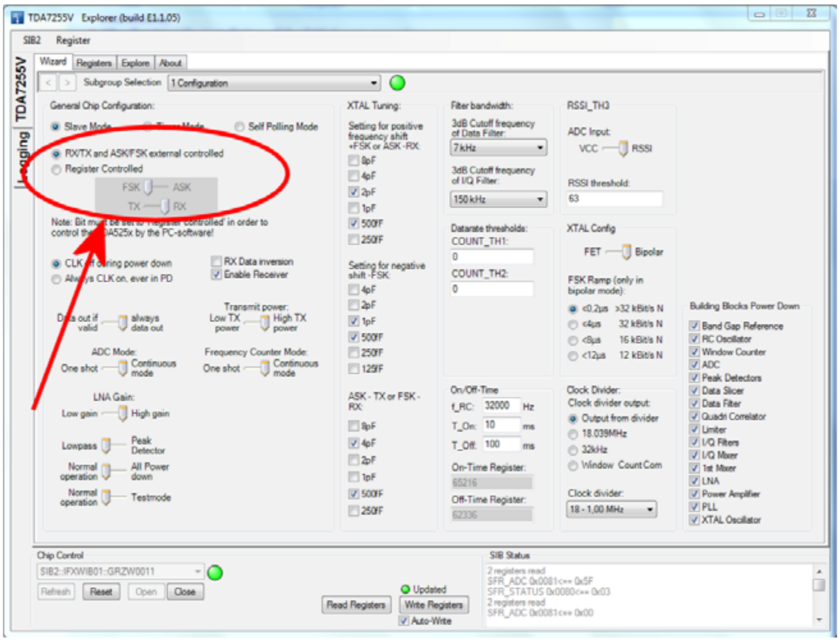


Figure 8 RX/TX and ASK/FSK external controlled or register controlled

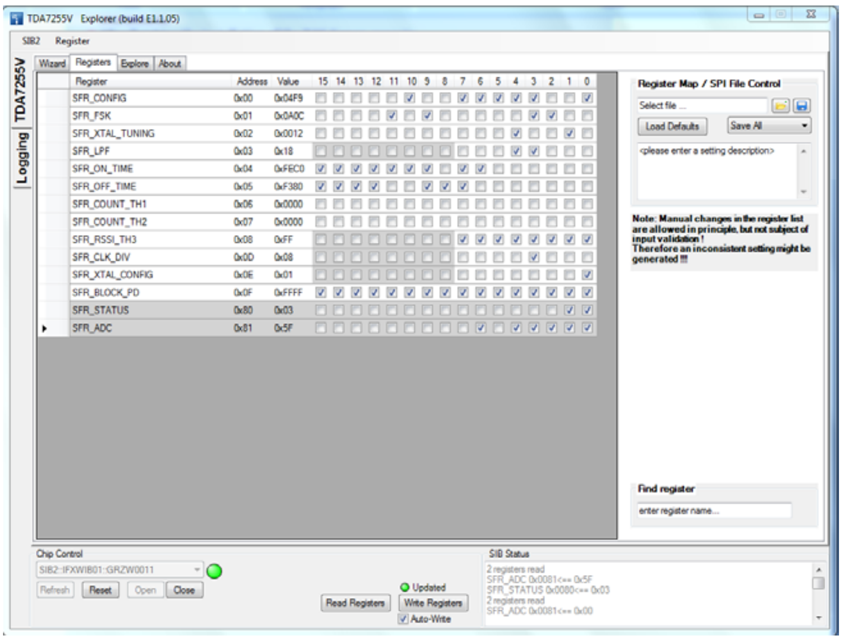


Figure 9 TDA7255V-Explorer, Register tab

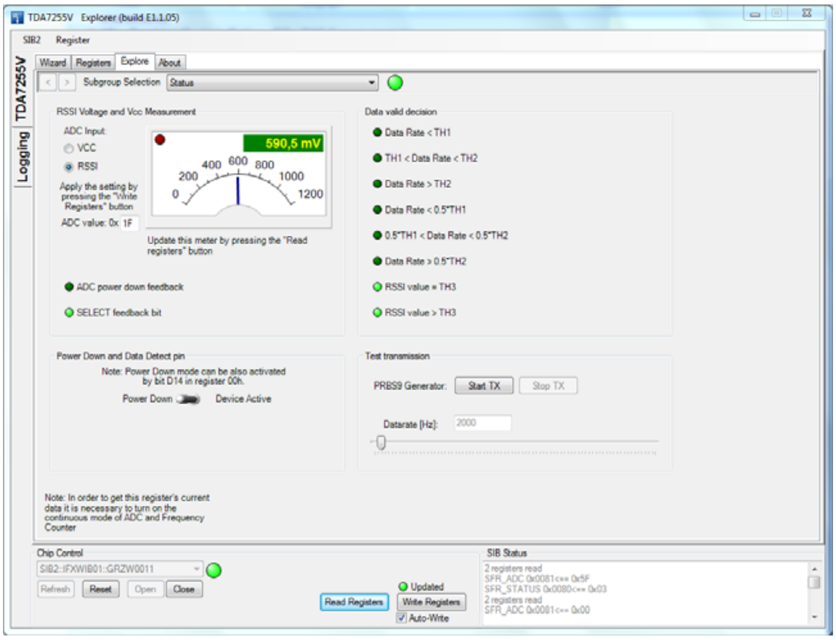


Figure 10 TDA7255V-Explorer, Explorer tab

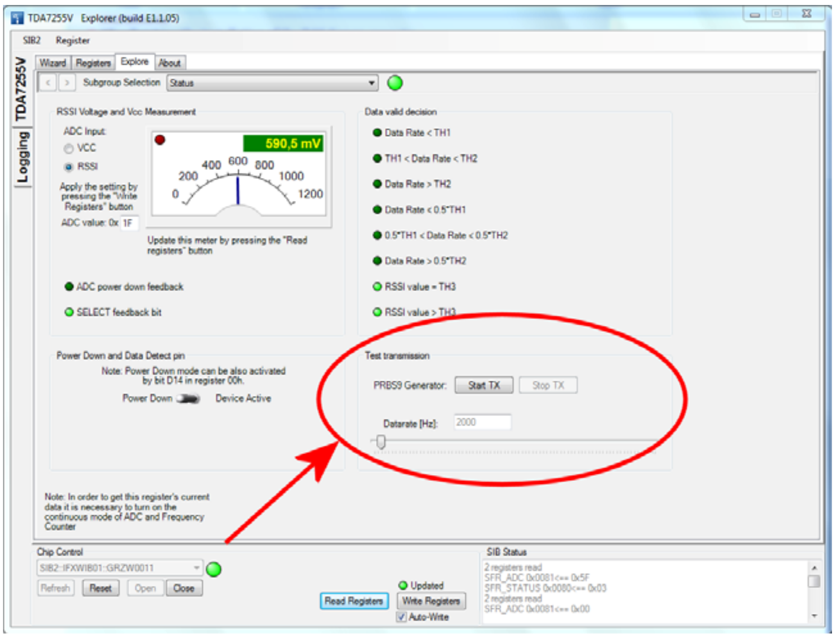


Figure 11 TDA7255V-Explorer, Explorer tab, Test transmission field

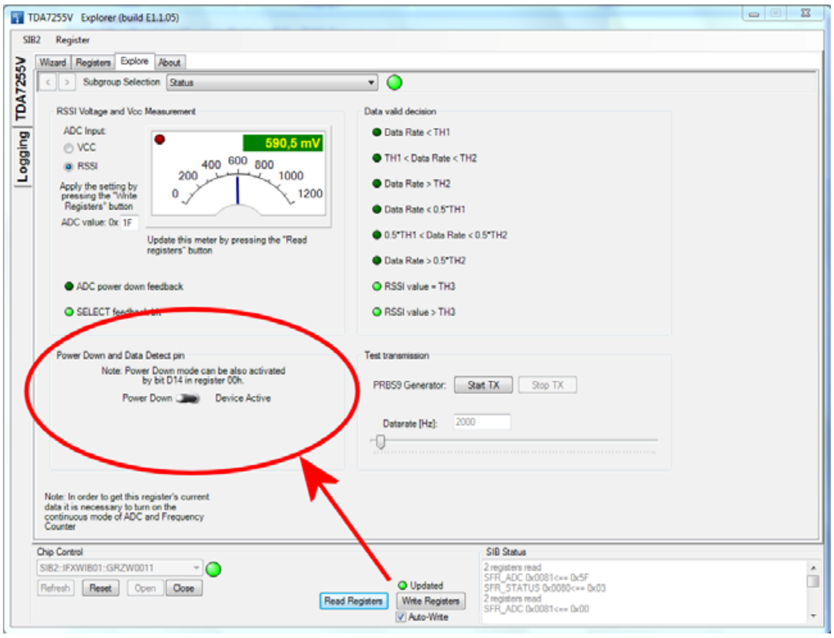


Figure 12 TDA7255V-Explorer, Explorer tab, Power Down and Data Detect pin



Figure 13 Reset button

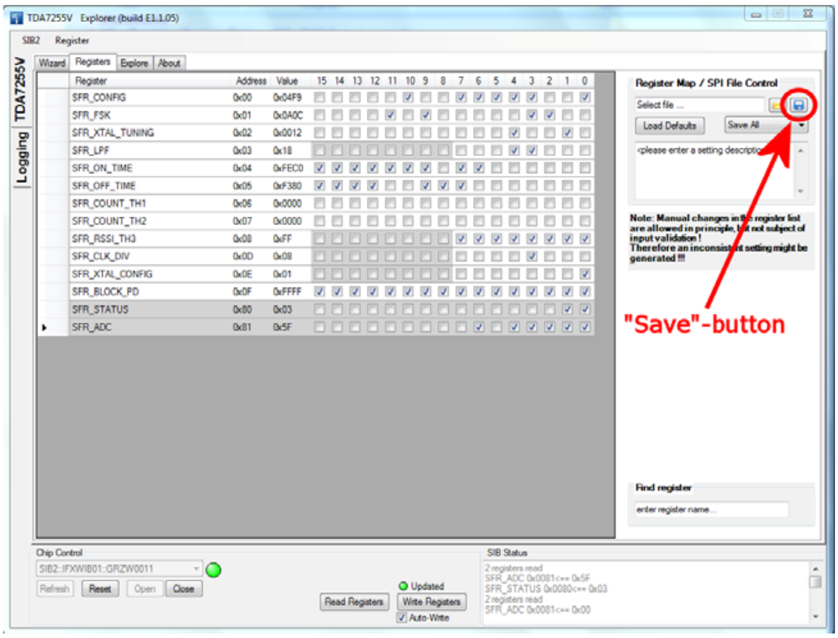


Figure 14 Save button

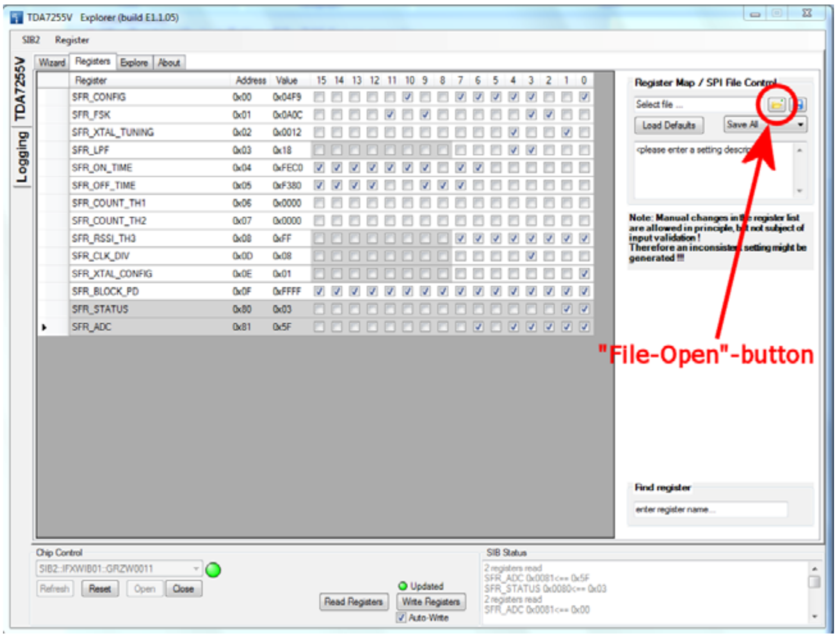


Figure 15 File-Open button

Step 3 – Configure the TDA7255V UWLink Extension-Board by the TDA7255V-Explorer via the USB connector of the PC

- If "reset" via **TDA7255V-Explorer** is desired or required you have to close solder bridge JP3 and open JP1 (see Figure 3).
- If you intend to send the PRBS9 sequence of the **TDA7255V-Explorer** (see **Test transmission**-field in the **Explore**-tab) in TX-mode you have to close solder bridge JP2 (see Figure 3).
- If you intend to supply the **TDA7255V UWLink Extension-Board** via the UWLink Mainboard you have to close JP4 (see Figure 3).
- If you intend to control the power-mode (**Power-Down-Mode**/**Device-Active-Mode**) of the **TDA7255V** by the **TDA7255V-Explorer** you have to close solder bridge JP5 (see Figure 3).
- Connect the **TDA7255V UWLink Extension-Board** to the **UWLink Mainboard**.
- The **TDA7255V UWLink Extension-Board** can be supplied by the USB-connector via the **UWLink-Mainboard** by closing jumper JP4 (see Figure 3). Alternatively, the **TDA7255V UWLink Extension-Board** may be supplied by an external power supply of 3V (2.1V to 5V) via connector X3 (JP4 must be open). For the polarity of X3 see also Figure 2.
- Connect the **UWLink Mainboard** to the USB-connector of your PC.
- Start the **TDA7255V Explorer** by double-clicking at the **TDA7255V Explorer** button (see Figure 5).
- Click to **OPEN** in the **Wizard**-tab to start the communication (see Figure 6).
- It is strongly recommended to remove the jumper of the RX/TX-multi-pin connector and ASK/FSK-multi-pin connector before you select "RX/TX and ASK/FSK Register Controlled" (see Figure 8) to avoid conflicting hardware and software settings and harming of the **TDA7255V**! If you select "RX/TX and ASK/FSK external controlled" (see Figure 8) you have to set the jumper of the ASK/FSK- and RX/TX-multi-pin connector according the desired mode (see Figure 2).

- Apply an antenna or RF-signal generator on the 50 Ω RF-connector (X1; see Figure 2) if the RX-mode is selected. Use an ASK-modulated or FSK-modulated RF-signal according the selected mode.
- Apply an antenna or Spectrum-Analyzer to be able to measure the spectrum, for instance, on the 50 Ω RF-connector (X1; see Figure 2) if the TX-mode is selected (via RX/TX-Jumper).
  CAUTION: Applying a signal, from a RF-signal generator for instance, in TX-mode could possibly damage the power amplifier output of the **TDA7255V**!
- Connect the Data Input/Output (X2; see Figure 2) to an Oscilloscope, for instance, to be able to measure the data signal, in case of RX-mode (via RX/TX-Jumper) is selected.
- Apply a data signal or just a rectangular signal on the Data Input/Output (X2; see Figure 2) if TX-mode is selected **or use the PRBS9-sequence of the TDA7255V-Explorer** when JP2 is closed. For data signal Low- and High-level see Data Sheet.

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